



SEQUENCE LISTING

<110> TOOLGEN, Inc.

<120> Regulatory Zinc Finger Proteins

<130> Q88285

<140> US 10/538,041

<141> 2005-06-08

<150> US 60/431,892

<151> 2002-12-09

<160> 129

<170> PatentIn version 3.2

<210> 1

<211> 23

<212> PRT

<213> Homo sapiens

<400> 1

Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
1 5 10 15

Arg Arg His Gly Arg Thr His
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<210> 2

<211> 23

<212> PRT

<213> Homo sapiens

<400> 2

Tyr Ser Cys Gly Ile Cys Gly Lys Ser Phe Ser Asp Ser Ser Ala Lys
1 5 10 15

Arg Arg His Cys Ile Leu His
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<210> 3

<211> 23

<212> PRT

<213> Homo sapiens

<400> 3

Tyr Thr Cys Ser Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu
1 5 10 15

Asn Arg His Arg Arg Thr His
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<210> 4
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<400> 4

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15

Thr Arg His Gln Lys Ile His
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<210> 5
<211> 23
<212> PRT
<213> Homo sapiens

<400> 5

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15

Thr Thr His Lys Ile Ile His
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<210> 6
<211> 23
<212> PRT
<213> Homo sapiens

<400> 6

Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1 5 10 15

Thr Arg His Lys Lys Ser His
20

<210> 7
<211> 23
<212> PRT
<213> Homo sapiens

<400> 7

Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
1 5 10 15

Thr Val His Gln Lys Ile His
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<210> 8

<211> 23
<212> PRT
<213> Homo sapiens

<400> 8

Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu
1 5 10 15

Ile Arg His Gln Arg Thr His
20

<210> 9
<211> 25
<212> PRT
<213> Homo sapiens

<400> 9

Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

Glu Leu Asn Arg His Lys Lys Arg His
20 25

<210> 10
<211> 23
<212> PRT
<213> Homo sapiens

<400> 10

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His
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<210> 11
<211> 23
<212> PRT
<213> Homo sapiens

<400> 11

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His
20

<210> 12
<211> 23
<212> PRT

<213> Homo sapiens

<400> 12

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His
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<210> 13

<211> 23

<212> PRT

<213> Homo sapiens

<400> 13

Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu
1 5 10 15

Asn Val His Arg Arg Ile His
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<210> 14

<211> 23

<212> PRT

<213> Homo sapiens

<400> 14

Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu
1 5 10 15

Arg Arg His Glu Thr Thr His
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<210> 15

<211> 23

<212> PRT

<213> Homo sapiens

<400> 15

Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu
1 5 10 15

Ile Arg His Gln Arg Ile His
20

<210> 16

<211> 23

<212> PRT

<213> Homo sapiens

<400> 16

Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu
1 5 10 15

Thr Arg His Lys Arg Ile His
20

<210> 17

<211> 23

<212> PRT

<213> Homo sapiens

<400> 17

Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
1 5 10 15

Asn Val His Lys Arg Thr His
20

<210> 18

<211> 23

<212> PRT

<213> Homo sapiens

<400> 18

Phe Leu Cys Gln Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu
1 5 10 15

Thr Arg His Met Lys Lys Ser
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<210> 19

<211> 24

<212> PRT

<213> Artificial

<220>

<223> Artificial zinc finger domain

<400> 19

Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Asp Ser Ser Asn Leu
1 5 10 15

Gln Arg His Val Arg Asn Ile His
20

<210> 20

<211> 83

<212> PRT

<213> Artificial

<220>
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<400> 20

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15
Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30
Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45
Arg Thr His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg
50 55 60
Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65 70 75 80
Gly Glu Lys

<210> 21
<211> 83
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 21

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15
Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30
Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45
Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60
Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80
Gly Glu Lys

<210> 22
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<212> PRT
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<220>
<223> artificial zinc finger protein

<400> 22

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15
Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30
Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45
Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60
Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80
Gly Glu Lys

<210> 23
<211> 83
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 23

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15
Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30
Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45
Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys
50 55 60
Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg Arg Ile His Thr
65 70 75 80
Gly Glu Lys

<210> 24
<211> 84
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 24

Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
 1 5 10 15
 Asn Val His Lys Arg Thr His Thr Gly Glu Lys Pro Phe Leu Cys Gln
 20 25 30
 Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu Thr Arg His Met
 35 40 45
 Lys Lys Ser His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln
 50 55 60
 Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His
 65 70 75 80
 Thr Gly Glu Lys

<210> 25
 <211> 83
 <212> PRT
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 <400> 25

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
 1 5 10 15
 Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
 20 25 30
 Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
 35 40 45
 Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
 50 55 60
 Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
 65 70 75 80
 Gly Glu Lys

<210> 26
 <211> 84
 <212> PRT
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 <400> 26

Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
 1 5 10 15
 Arg Arg His Gly Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu
 20 25 30
 Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys
 35 40 45
 Arg Ile His Thr Gly Glu Lys Pro Phe Leu Cys Gln Tyr Cys Ala Gln
 50 55 60
 Arg Phe Gly Arg Lys Asp His Leu Thr Arg His Met Lys Lys Ser His
 65 70 75 80
 Thr Gly Glu Lys

<210> 27
 <211> 83
 <212> PRT
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<220>
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<400> 27

Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
 1 5 10 15
 Arg Arg His Gly Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu
 20 25 30
 Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys
 35 40 45
 Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
 50 55 60
 Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
 65 70 75 80
 Gly Glu Lys

<210> 28
 <211> 85
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 28

Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Asp Ser Ser Asn Leu
 1 5 10 15
 Gln Arg His Val Arg Asn Ile His Thr Gly Glu Lys Pro Tyr Arg Cys
 20 25 30
 Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His
 35 40 45
 Lys Arg Ile His Thr Gly Glu Lys Pro Phe Leu Cys Gln Tyr Cys Ala
 50 55 60
 Gln Arg Phe Gly Arg Lys Asp His Leu Thr Arg His Met Lys Lys Ser
 65 70 75 80
 His Thr Gly Glu Lys
 85

<210> 29
 <211> 84
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 29

Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Asp Ser Ser Asn Leu
 1 5 10 15
 Gln Arg His Val Arg Asn Ile His Thr Gly Glu Lys Pro Tyr Arg Cys
 20 25 30
 Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His
 35 40 45
 Lys Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly
 50 55 60
 Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His
 65 70 75 80
 Thr Gly Glu Lys

<210> 30
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 30

Tyr Ser Cys Gly Ile Cys Gly Lys Ser Phe Ser Asp Ser Ser Ala Lys
 1 5 10 15
 Arg Arg His Cys Ile Leu His Thr Gly Glu Lys Pro Tyr Ile Cys Arg
 20 25 30
 Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln
 35 40 45
 Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
 50 55 60
 Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
 65 70 75 80
 Gly Glu Lys Pro Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val
 85 90 95
 Ser Ser Ser Leu Arg Arg His Glu Thr Thr His Thr Gly Glu Lys
 100 105 110

<210> 31
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 31

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
 1 5 10 15
 Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Ser Cys Gly
 20 25 30
 Ile Cys Gly Lys Ser Phe Ser Asp Ser Ser Ala Lys Arg Arg His Cys
 35 40 45
 Ile Leu His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg
 50 55 60
 Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
 65 70 75 80
 Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
 85 90 95
 Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
 100 105 110

<210> 32
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein
 <400> 32

Phe	Gln	Cys	Lys	Thr	Cys	Gln	Arg	Lys	Phe	Ser	Arg	Ser	Asp	His	Leu
1				5					10					15	
Lys	Thr	His	Thr	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Glu	Cys	Asp
			20					25					30		
His	Cys	Gly	Lys	Ala	Phe	Ser	Val	Ser	Ser	Asn	Leu	Asn	Val	His	Arg
		35					40					45			
Arg	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys
	50					55					60				
Ala	Phe	Arg	Gln	Ser	Ser	His	Leu	Thr	Thr	His	Lys	Ile	Ile	His	Thr
65					70					75					80
Gly	Glu	Lys	Pro	Tyr	Ser	Cys	Gly	Ile	Cys	Gly	Lys	Ser	Phe	Ser	Asp
				85					90					95	
Ser	Ser	Ala	Lys	Arg	Arg	His	Cys	Ile	Leu	His	Thr	Gly	Glu	Lys	
			100					105					110		

<210> 33
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein
 <400> 33

Tyr	Lys	Cys	Met	Glu	Cys	Gly	Lys	Ala	Phe	Asn	Arg	Arg	Ser	His	Leu
1				5					10					15	
Thr	Arg	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Thr	Cys	Ser
			20					25					30		
Asp	Cys	Gly	Lys	Ala	Phe	Arg	Asp	Lys	Ser	Cys	Leu	Asn	Arg	His	Arg
		35					40					45			
Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys
	50					55					60				
Ala	Phe	Arg	Gln	Ser	Ser	His	Leu	Thr	Thr	His	Lys	Ile	Ile	His	Thr
65					70					75					80
Gly	Glu	Lys	Pro	Tyr	Thr	Cys	Ser	Asp	Cys	Gly	Lys	Ala	Phe	Arg	Asp
				85					90					95	
Lys	Ser	Cys	Leu	Asn	Arg	His	Arg	Arg	Thr	His	Thr	Gly	Glu	Lys	
			100					105					110		

<210> 34
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 34

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Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1          5          10          15
Thr Arg His Lys Lys Ser His Thr Gly Glu Lys Pro Tyr Lys Cys Gly
          20          25          30
Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu Thr Arg His Gln
          35          40          45
Lys Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
          50          55          60
Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65          70          75          80
Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg
          85          90          95
Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu Lys
          100          105          110

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<210> 35
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 35

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Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
1          5          10          15
Arg Arg His Gly Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys
          20          25          30
Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
          35          40          45
Arg Thr His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg
          50          55          60
Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65          70          75          80

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Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 36
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 36

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys
35 40 45

Ile Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe
85 90 95

Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu
100 105 110

Lys

<210> 37
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 37

Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1 5 10 15

Thr Arg His Lys Lys Ser His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
 35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Asp Cys Gly Lys
 50 55 60

Ser Phe Ser Gln Ser Ser Ser Leu Ile Arg His Gln Arg Thr His Thr
 65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
 85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
 100 105 110

<210> 38
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 38

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
 1 5 10 15

Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Ser
 20 25 30

Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu Asn Arg His Arg
 35 40 45

Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
 50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
 65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys
 85 90 95

Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr Gly Glu Lys
 100 105 110

<210> 39
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 39

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
 1 5 10 15
 Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Arg Cys Glu
 20 25 30
 Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys
 35 40 45
 Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
 50 55 60
 Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
 65 70 75 80
 Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp
 85 90 95
 Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr Gly Glu Lys
 100 105 110

<210> 40
 <211> 113
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 40

Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu
 1 5 10 15
 Asn Val His Arg Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
 20 25 30
 Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
 35 40 45
 Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys
 50 55 60
 Thr Trp Lys Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg
 65 70 75 80
 His Thr Gly Glu Lys Pro Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe
 85 90 95
 Thr Gln Ser Ser Asn Leu Thr Val His Gln Lys Ile His Thr Gly Glu
 100 105 110

Lys

<210> 41
 <211> 111
 <212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 41

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 42

<211> 111

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 42

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95

Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys

100

105

110

<210> 43
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 43

Tyr	Ile	Cys	Arg	Lys	Cys	Gly	Arg	Gly	Phe	Ser	Arg	Lys	Ser	Asn	Leu
1				5					10					15	
Ile	Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Gly
			20					25					30		
Gln	Cys	Gly	Lys	Phe	Tyr	Ser	Gln	Val	Ser	His	Leu	Thr	Arg	His	Gln
		35					40					45			
Lys	Ile	His	Thr	Gly	Glu	Lys	Pro	Phe	Gln	Cys	Lys	Thr	Cys	Gln	Arg
	50					55					60				
Lys	Phe	Ser	Arg	Ser	Asp	His	Leu	Lys	Thr	His	Thr	Arg	Thr	His	Thr
65					70				75					80	
Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Met	Glu	Cys	Gly	Lys	Ala	Phe	Asn	Arg
			85					90						95	
Arg	Ser	His	Leu	Thr	Arg	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys	
			100					105					110		

<210> 44
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 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 44

Tyr	Val	Cys	Asp	Val	Glu	Gly	Cys	Thr	Trp	Lys	Phe	Ala	Arg	Ser	Asp
1				5					10					15	
Glu	Leu	Asn	Arg	His	Lys	Lys	Arg	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys
			20					25					30		
Cys	Pro	Asp	Cys	Gly	Lys	Ser	Phe	Ser	Gln	Ser	Ser	Ser	Leu	Ile	Arg
		35					40					45			
His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Glu	Glu	Cys
	50					55					60				
Gly	Lys	Ala	Phe	Arg	Gln	Ser	Ser	His	Leu	Thr	Thr	His	Lys	Ile	Ile
65					70				75					80	

His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe
85 90 95

Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu
100 105 110

Lys

<210> 45
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 45

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys
50 55 60

Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln
85 90 95

Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr Gly Glu Lys
100 105 110

<210> 46
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<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 46

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
 35 40 45
 Arg Ile His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys
 50 55 60
 Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr
 65 70 75 80
 Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
 85 90 95
 Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
 100 105 110

<210> 47
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 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 47

Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
 1 5 10 15
 Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu Lys Pro Tyr Lys
 20 25 30
 Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg
 35 40 45
 His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Ser Asp Cys
 50 55 60
 Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu Asn Arg His Arg Arg Thr
 65 70 75 80
 His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe
 85 90 95
 Arg Gln Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr Gly Glu
 100 105 110

Lys

<210> 48
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 48

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15
Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Asn
20 25 30
Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu Ile Arg His Gln
35 40 45
Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys
50 55 60
Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr
65 70 75 80
Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95
Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 49

<211> 113

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 49

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15
Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Arg
20 25 30
Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln
35 40 45
Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys
50 55 60
Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr
65 70 75 80
Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe
85 90 95
Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu
100 105 110

Lys

<210> 50
 <211> 113
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 50

Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys	Ala	Phe	Arg	Gln	Ser	Ser	His	Leu
1				5					10					15	
Thr	Thr	His	Lys	Ile	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Arg	Cys	Glu
			20					25					30		
Glu	Cys	Gly	Lys	Ala	Phe	Arg	Trp	Pro	Ser	Asn	Leu	Thr	Arg	His	Lys
		35					40					45			
Arg	Ile	His	Thr	Gly	Glu	Lys	Pro	Phe	Gln	Cys	Lys	Thr	Cys	Gln	Arg
	50					55					60				
Lys	Phe	Ser	Arg	Ser	Asp	His	Leu	Lys	Thr	His	Thr	Arg	Thr	His	Thr
65					70				75						80
Gly	Glu	Lys	Pro	Tyr	Val	Cys	Asp	Val	Glu	Gly	Cys	Thr	Trp	Lys	Phe
				85					90					95	
Ala	Arg	Ser	Asp	Glu	Leu	Asn	Arg	His	Lys	Lys	Arg	His	Thr	Gly	Glu
			100					105					110		

Lys

<210> 51
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 51

Tyr	Thr	Cys	Lys	Gln	Cys	Gly	Lys	Ala	Phe	Ser	Val	Ser	Ser	Ser	Leu
1				5					10					15	
Arg	Arg	His	Glu	Thr	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Arg	Cys	Glu
			20					25					30		
Glu	Cys	Gly	Lys	Ala	Phe	Arg	Trp	Pro	Ser	Asn	Leu	Thr	Arg	His	Lys
		35					40					45			
Arg	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Ile	Cys	Arg	Lys	Cys	Gly	Arg
	50					55					60				

Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val
85 90 95

Ser Ser Ser Leu Arg Arg His Glu Thr Thr His Thr Gly Glu Lys
100 105 110

<210> 52

<211> 111

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 52

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15

Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Lys
20 25 30

Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu Arg Arg His Glu
35 40 45

Thr Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys
50 55 60

Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg
85 90 95

Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 53

<211> 113

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 53

Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu Lys Pro Tyr Lys
20 25 30

Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu Thr Arg

35

40

45

His Gln Lys Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Lys Gln Cys
 50 55 60

Gly Lys Ala Phe Ser Val Ser Ser Ser Leu Arg Arg His Glu Thr Thr
 65 70 75 80

His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe
 85 90 95

Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr Gly Glu
 100 105 110

Lys

<210> 54

<211> 111

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 54

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
 1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Gly
 20 25 30

Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu Thr Arg His Gln
 35 40 45

Lys Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
 50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
 65 70 75 80

Gly Glu Lys Pro Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln
 85 90 95

Ser Ser Asn Leu Thr Val His Gln Lys Ile His Thr Gly Glu Lys
 100 105 110

<210> 55

<211> 111

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 55

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15
Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Arg
20 25 30
Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln
35 40 45
Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Gly Gln Cys Gly Lys
50 55 60
Phe Tyr Ser Gln Val Ser His Leu Thr Arg His Gln Lys Ile His Thr
65 70 75 80
Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95
Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 56

<211> 111

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 56

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15
Lys Thr His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Ile Cys Arg
20 25 30
Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln
35 40 45
Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60
Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80
Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp
85 90 95
Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 57

<211> 111

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 57

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys
50 55 60

Ala Phe Gly Cys Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95

Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 58

<211> 111

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 58

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys
20 25 30

Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu Arg Arg His Gly
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys
85 90 95

Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr Gly Glu Lys

100

105

110

<210> 59
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 59

Tyr	Lys	Cys	Pro	Asp	Cys	Gly	Lys	Ser	Phe	Ser	Gln	Ser	Ser	Ser	Leu
1				5					10					15	
Ile	Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Gly
			20					25					30		
Gln	Cys	Gly	Lys	Phe	Tyr	Ser	Gln	Val	Ser	His	Leu	Thr	Arg	His	Gln
		35					40					45			
Lys	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Ile	Cys	Arg	Lys	Cys	Gly	Arg
	50					55					60				
Gly	Phe	Ser	Arg	Lys	Ser	Asn	Leu	Ile	Arg	His	Gln	Arg	Thr	His	Thr
65					70				75					80	
Gly	Glu	Lys	Pro	Tyr	Ile	Cys	Arg	Lys	Cys	Gly	Arg	Gly	Phe	Ser	Arg
			85						90					95	
Lys	Ser	Asn	Leu	Ile	Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	
			100					105					110		

<210> 60
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 60

Tyr	Glu	Cys	Asn	Tyr	Cys	Gly	Lys	Thr	Phe	Ser	Val	Ser	Ser	Thr	Leu
1				5					10					15	
Ile	Arg	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Glu
			20					25					30		
Glu	Cys	Gly	Lys	Ala	Phe	Arg	Gln	Ser	Ser	His	Leu	Thr	Thr	His	Lys
		35					40					45			
Ile	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Arg	Cys	Glu	Glu	Cys	Gly	Lys
	50					55					60				
Ala	Phe	Arg	Trp	Pro	Ser	Asn	Leu	Thr	Arg	His	Lys	Arg	Ile	His	Thr
65					70				75					80	

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95
Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 61
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 61

Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu
1 5 10 15
Ile Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Glu
20 25 30
Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys
35 40 45
Lys Ser His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60
Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80
Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln
85 90 95
Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr Gly Glu Lys
100 105 110

<210> 62
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 62

Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1 5 10 15
Thr Arg His Lys Lys Ser His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30
Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys
50 55 60
Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr
65 70 75 80
Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val
85 90 95
Ser Ser Asn Leu Asn Val His Arg Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 63
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 63

Tyr Thr Cys Ser Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu
1 5 10 15
Asn Arg His Arg Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30
Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45
Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asn Tyr Cys Gly Lys
50 55 60
Thr Phe Ser Val Ser Ser Thr Leu Ile Arg His Gln Arg Ile His Thr
65 70 75 80
Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe
85 90 95
Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu
100 105 110

Lys

<210> 64
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 64

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu

1	5	10	15
Thr Arg His	Gln Arg Ile His Thr	Gly Glu Lys Pro Tyr	Thr Cys Ser
	20	25	30
Asp Cys Gly	Lys Ala Phe Arg Asp	Lys Ser Cys Leu Asn	Arg His Arg
	35	40	45
Arg Thr His	Thr Gly Glu Lys Pro	Phe Gln Cys Lys	Thr Cys Gln Arg
	50	55	60
Lys Phe Ser	Arg Ser Asp His Leu	Lys Thr His Thr	Arg Thr His Thr
	65	70	75
Gly Glu Lys	Pro Tyr Lys Cys Met	Glu Cys Gly Lys	Ala Phe Asn Arg
	85	90	95
Arg Ser His	Leu Thr Arg His Gln	Arg Ile His Thr	Gly Glu Lys
	100	105	110

<210> 65
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 65

Tyr Lys Cys	Met Glu Cys Gly	Lys Ala Phe Asn	Arg Arg Ser	His Leu
1	5	10		15
Thr Arg His	Gln Arg Ile His Thr	Gly Glu Lys Pro	Tyr Lys Cys	Met
	20	25	30	
Glu Cys Gly	Lys Ala Phe Asn Arg	Arg Ser His Leu	Thr Arg His	Gln
	35	40	45	
Arg Ile His	Thr Gly Glu Lys Pro	Tyr Val Cys Ser	Lys Cys Gly	Lys
	50	55	60	
Ala Phe Thr	Gln Ser Ser Asn Leu	Thr Val His Gln	Lys Ile His	Thr
	65	70	75	80
Gly Glu Lys	Pro Tyr Val Cys Ser	Lys Cys Gly Lys	Ala Phe Thr	Gln
	85	90	95	
Ser Ser Asn	Leu Thr Val His Gln	Lys Ile His Thr	Gly Glu Lys	
	100	105	110	

<210> 66
 <211> 113
 <212> PRT
 <213> Artificial

<220>

<223> artificial zinc finger protein

<400> 66

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15
Lys Thr His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Thr Cys Lys
20 25 30
Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu Arg Arg His Glu
35 40 45
Thr Thr His Thr Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys
50 55 60
Thr Trp Lys Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg
65 70 75 80
His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe
85 90 95
Ser Gln Ser Ser Ser Leu Ile Arg His Gln Arg Thr His Thr Gly Glu
100 105 110
Lys

<210> 67

<211> 111

<212> PRT

<213> Artificial

<220>

<223> artificial zinc finger protein

<400> 67

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15
Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
20 25 30
Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu Ile Arg His Gln
35 40 45
Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys
50 55 60
Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr
65 70 75 80
Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95
Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 68
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 68

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Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1           5           10           15
Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Ser Cys Gly
          20           25           30
Ile Cys Gly Lys Ser Phe Ser Asp Ser Ser Ala Lys Arg Arg His Cys
          35           40           45
Ile Leu His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys
          50           55           60
Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr
65           70           75           80

Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln
          85           90           95
Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr Gly Glu Lys
          100          105          110

```

<210> 69
 <211> 111
 <212> PRT
 <213> Artificial

<220>
 <223> artificial zinc finger protein

<400> 69

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Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1           5           10           15
Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys
          20           25           30
Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu Arg Arg His Gly
          35           40           45
Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys
          50           55           60
Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr
65           70           75           80

```


Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg
85 90 95

Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 70
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 70

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys
35 40 45

Ile Ile His Thr Gly Glu Lys Pro Tyr Ser Cys Gly Ile Cys Gly Lys
50 55 60

Ser Phe Ser Asp Ser Ser Ala Lys Arg Arg His Cys Ile Leu His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 71
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 71

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15

Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys
50 55 60
Thr Trp Lys Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg
65 70 75 80
His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe
85 90 95
Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu
100 105 110

Lys

<210> 72
<211> 96
<212> PRT
<213> Homo sapiens

<400> 72

Asp Ala Lys Ser Leu Thr Ala Trp Ser Arg Thr Leu Val Thr Phe Lys
1 5 10 15
Asp Val Phe Val Asp Phe Thr Arg Glu Glu Trp Lys Leu Leu Asp Thr
20 25 30
Ala Gln Gln Ile Val Tyr Arg Asn Val Met Leu Glu Asn Tyr Lys Asn
35 40 45
Leu Val Ser Leu Gly Tyr Gln Leu Thr Lys Pro Asp Val Ile Leu Arg
50 55 60
Leu Glu Lys Gly Glu Glu Pro Trp Leu Val Glu Arg Glu Ile His Gln
65 70 75 80
Glu Thr His Pro Asp Ser Glu Thr Ala Phe Glu Ile Lys Ser Ser Val
85 90 95

<210> 73
<211> 260
<212> PRT
<213> Homo sapiens

<400> 73

Tyr Leu Pro Asp Thr Asp Asp Arg His Arg Ile Glu Glu Lys Arg Lys
1 5 10 15
Arg Thr Tyr Glu Thr Phe Lys Ser Ile Met Lys Lys Ser Pro Phe Ser
20 25 30
Gly Pro Thr Asp Pro Arg Pro Pro Arg Arg Ile Ala Val Pro Ser
35 40 45

Arg Ser Ser Ala Ser Val Pro Lys Pro Ala Pro Gln Pro Tyr Pro Phe
 50 55 60
 Thr Ser Ser Leu Ser Thr Ile Asn Tyr Asp Glu Phe Pro Thr Met Val
 65 70 75 80
 Phe Pro Ser Gly Gln Ile Ser Gln Ala Ser Ala Leu Ala Pro Ala Pro
 85 90 95
 Pro Gln Val Leu Pro Gln Ala Pro Ala Pro Ala Pro Ala Pro Ala Met
 100 105 110
 Val Ser Ala Leu Ala Gln Ala Pro Ala Pro Val Pro Val Leu Ala Pro
 115 120 125
 Gly Pro Pro Gln Ala Val Ala Pro Pro Ala Pro Lys Pro Thr Gln Ala
 130 135 140
 Gly Glu Gly Thr Leu Ser Glu Ala Leu Leu Gln Leu Gln Phe Asp Asp
 145 150 155 160
 Glu Asp Leu Gly Ala Leu Leu Gly Asn Ser Thr Asp Pro Ala Val Phe
 165 170 175
 Thr Asp Leu Ala Ser Val Asp Asn Ser Glu Phe Gln Gln Leu Leu Asn
 180 185 190
 Gln Gly Ile Pro Val Ala Pro His Thr Thr Glu Pro Met Leu Met Glu
 195 200 205
 Tyr Pro Glu Ala Ile Thr Arg Leu Val Thr Ala Gln Arg Pro Pro Asp
 210 215 220
 Pro Ala Pro Ala Pro Leu Gly Ala Pro Gly Leu Pro Asn Gly Leu Leu
 225 230 235 240
 Ser Gly Asp Glu Asp Phe Ser Ser Ile Ala Asp Met Asp Phe Ser Ala
 245 250 255
 Leu Leu Ser Gln
 260

<210> 74
 <211> 127
 <212> PRT
 <213> *Sacharromyces cerevisiae*

<400> 74

Asn Phe Asn Gln Ser Gly Asn Ile Ala Asp Ser Ser Leu Ser Phe Thr
 1 5 10 15
 Phe Thr Asn Ser Ser Asn Gly Pro Asn Leu Ile Thr Thr Gln Thr Asn
 20 25 30
 Ser Gln Ala Leu Ser Gln Pro Ile Ala Ser Ser Asn Val His Asp Asn
 35 40 45

Phe Met Asn Asn Glu Ile Thr Ala Ser Lys Ile Asp Asp Gly Asn Asn
 50 55 60
 Ser Lys Pro Leu Ser Pro Gly Trp Thr Asp Gln Thr Ala Tyr Asn Ala
 65 70 75 80
 Phe Gly Ile Thr Thr Gly Met Phe Asn Thr Thr Thr Met Asp Asp Val
 85 90 95
 Tyr Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro Lys Lys
 100 105 110
 Glu Ile Ser Met Ala Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser
 115 120 125

<210> 75
 <211> 63
 <212> PRT
 <213> Homo sapiens

<400> 75

Val Ser Val Thr Phe Glu Asp Val Ala Val Leu Phe Thr Arg Asp Glu
 1 5 10 15
 Trp Lys Lys Leu Asp Leu Ser Gln Arg Ser Leu Tyr Arg Glu Val Met
 20 25 30
 Leu Glu Asn Tyr Ser Asn Leu Ala Ser Met Ala Gly Phe Leu Phe Thr
 35 40 45
 Lys Pro Lys Val Ile Ser Leu Leu Gln Gln Gly Glu Asp Pro Trp
 50 55 60

<210> 76
 <211> 12
 <212> DNA
 <213> Homo sapiens

<400> 76
 gtttgggagg tc

12

<210> 77
 <211> 12
 <212> DNA
 <213> Homo sapiens

<400> 77
 tgggaggtca ga

12

<210> 78
 <211> 12
 <212> DNA
 <213> Homo sapiens

<400> 78 gtcagaaata gg	12
<210> 79 <211> 12 <212> DNA <213> Homo sapiens	
<400> 79 gccagagccg gg	12
<210> 80 <211> 12 <212> DNA <213> Homo sapiens	
<400> 80 gagcggggag aa	12
<210> 81 <211> 12 <212> DNA <213> Homo sapiens	
<400> 81 ggggagaggg ac	12
<210> 82 <211> 12 <212> DNA <213> Homo sapiens	
<400> 82 gtggggagag gg	12
<210> 83 <211> 12 <212> DNA <213> Homo sapiens	
<400> 83 ggggcagggg aa	12
<210> 84 <211> 12 <212> DNA <213> Homo sapiens	
<400> 84 gacagggcct ga	12

<210> 85
<211> 12
<212> DNA
<213> Homo sapiens

<400> 85
ggtggggggtc ga

12

<210> 86
<211> 12
<212> DNA
<213> Homo sapiens

<400> 86
caagtgggga at

12

<210> 87
<211> 12
<212> DNA
<213> Homo sapiens

<400> 87
gggtgggggg ag

12

<210> 88
<211> 12
<212> DNA
<213> Homo sapiens

<400> 88
aggggggtggg gg

12

<210> 89
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His Xaa Xaa Xaa His
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Arg Ser Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys
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35 40 45

Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys
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Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His
65 70 75 80

Thr Lys Ile His Leu Arg Gln Lys Asp
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